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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,968	03/11/2004	Cheng-Yin Lee	ALC 3119	4035

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KRAMER & AMADO, P.C.
1725 Duke Street, Suite 240
Alexandria, VA 22314

EXAMINER

KAO, WEI PO ERIC

ART UNIT	PAPER NUMBER
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2609

MAIL DATE	DELIVERY MODE
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09/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/796,968	LEE, CHENG-YIN	
	Examiner	Art Unit	
	Wei-po Kao	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 and 17 is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-16, 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Abstract

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of an apparatus should not be included in the abstract.

Drawings

3. The drawings are objected to because the steps of the Figure 7 are not labeled. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheet" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the corrected drawing and marked-up copy will result in the abandonment of the application.

Claim Rejection - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claim 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For Claim 13, the claimed term, "at connection type," of Line 2 is unclear.

Claim Rejection - 35 USC § 103

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

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skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donzis et al, U.S. Patent No 6976071 in view of Au et al, U.S. Patent No 7212492.

For Claim 1, Donzis et al teach that **a method of verifying a data path from a source node to a destination node in a interconnected communication network, the data path including a source edge node connected to the source node and a destination edge node connected to the destination node** (see Abstract, Figure 1), **comprising the steps of: a) creating, at the source edge node, a path verification request message; b) encapsulating, by the source edge node, the request message in a first Ethernet frame; c) sending the first Ethernet frame towards the destination node along the data path; d) detecting, at the destination edge node, the first Ethernet frame; e) creating, at the destination edge node, a path verification response message; f) encapsulating, by the destination edge node, the response message in a second Ethernet frame; g) sending the second Ethernet frame towards the source node along the data path; h) detecting, at the source edge node, the second Ethernet frame; and i) determining, by the source edge node responsive to receiving the response message, that the data path is operational** (see Figure 3-4, Column 3 Line 57-58, Column 5 Line 1-19, Column 7 Line 1-15 25-35). For Claim 3, Donzis et al teach that **the method, wherein steps b) and f) include the step of addressing the frames to the destination/source edge nodes and steps d) and h) include the step of terminating the frames** (see Figure 4, Column 5 Line 6-14, Column 6 Line 54-65 e.g. when the request message is received only the payload portion is preserved, new header and other fields of a packet is created and combined with the payload, thus terminating the request message). For Claim 4, Donzis et al teach that **the method, wherein prior to step a) the destination edge node is discovered** (see Column 1 Line 64-67, Column 3 Line 22-47).

For Claim 1, Donzis et al do not teach that **the interconnected communication network is an Ethernet network; the first and second Ethernet frames include an indication to identify**

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the first and second frames serve different purpose than other frames. For Claim 2, Donzis et al do not teach that **the method as defined, wherein steps d) and h) include the step of filtering the frames from data traffic on the data path according to request and response indications respectively.**

For Claim 1, Au et al teach that **the interconnected communication network is an Ethernet network** (see Abstract, Column 2 Line 35-39 44-46, Column 3 Line 1-6); **the first and second Ethernet frames include an indication to identify the first and second frames serve different purpose than other frames** (see Abstract, Column 2 Line 35-39). For Claim 2, Au et al teach that **the method as defined, wherein steps d) and h) include the step of filtering the frames from data traffic on the data path according to request and response indications respectively** (see Column 2 Line 35-39 44-46, Column 3 Line 1-6).

Claim 8 is a system claim corresponding to method claim 1, and therefore rejected under the same reason set forth in this paragraph.

Donzis et al and Au et al are analogous art because they are from same field of providing a method to detect if a data path in a communication network is alive.

At the time of the invention, it would have been obvious to a person ordinary skill in the art to apply Donzis' method of detecting if a data path is alive in an Ethernet networking environment as described in Au's invention; furthermore, Donzis' method can be incorporated as part of the functionality of Au's network management method. The combination is made possible because the underlying technology for the two inventions base on OSI model: IP is at 3rd layer and Ethernet is at 2nd layer and the fact that 3rd layer is tightly based on 2nd layer.

The motivation would have been that since the "ping" utility is widely used in networking management at the 3rd layer of the OSI networking model such as IP network, such concept of "ping" can be also relied upon without additional modifications to the existing Ethernet architecture, which is the dominating 2nd layer technology (see Au et al, Column 1 Line 59-67, Column 2 Line 1-2). Furthermore, by shifting upper layer utility to lower layer ease the

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processing load of higher layer, which in turn yields the better and more focus performance in the overall communication process.

Therefore, it would have been obvious to combine Donzis et al and Au et al to obtain the claims 1-4 and 8.

11. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donzis et al, U.S. Patent No 6976071 and Au et al, U.S. Patent No 7212492 as applied to claim 4 above, and further in view of Slater, U.S. Patent No 6952421.

For Claim 5, Donzis et al and Au et al teach the all limitations in Claim 4 as disclosed in paragraph 10 of this action except that **the method, wherein the destination edge node is discovered by using a hop-by-hop technique wherein the address of the destination node is carried by a discover request message.** For Claim 6, Donzis et al and Au et al teach the all limitations set 1 in Claim 4 except that **the method, wherein destination edge node is discovered by sending a discover request message to a special multicast address, and the destination edge node adjacent to the destination node responds to the discover request message.**

For Claim 5, Slater teaches that **the method, wherein the destination edge node is discovered by using a hop-by-hop technique wherein the address of the destination node is carried by a discover request message** (see Column 13 Line 17-26, Column 15 Line 56-67). For Claim 6, Slater teaches that **the method, wherein destination edge node is discovered by sending a discover request message to a special multicast address, and the destination edge node adjacent to the destination node responds to the discover request message** (see Column 9 Line 27-44, Column 13 Line 17-26).

Donzis et al, Au et al and Slater are analogous art because they are from same field of endeavor. At the time of the invention, it would have been obvious to a person ordinary skill in the art to implement the functionality of discovering a destination node is an Ethernet network of Slater to Au's Ethernet networking management method.

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The motivation would have been that without modifying the existing Ethernet architecture, the node discovering functionality from Slater provide utility such as “traceroute” usually implemented in the 3rd layer of the OSI model is made possible in the 2nd layer.

Therefore, it would have been obvious to combine Donzis et al, Au et al and Slater to obtain the claims 5 and 6.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donzis et al, U.S. Patent No 6976071 and Au et al, U.S. Patent No 7212492 as applied to claim 1 above, and further in view of Coughlin et al, U.S. Patent No 6952421.

For Claim 7, Donzis et al and Au et al teach the all limitations in Claim 1 as disclosed in paragraph 10 of this office action except that **the method further includes the step of calculating a round trip delay by adding a time stamp to the verification message and calculating, by the source edge node the delay responsive to receiving the response message.**

For Claim 7, Coughlin et al teach that **the method further includes the step of calculating a round trip delay by adding a time stamp to the verification message and calculating, by the source edge node the delay responsive to receiving the response message** (see Column 7 Line 28-49).

Donzis et al, Au et al and Coughlin et al are analogous art because they are from same field of endeavor.

At the time of the invention, it would have been obvious to a person ordinary skill in the art to implement the functionality of estimating round trip time between a pair of communication nodes of Coughlin to Au’s Ethernet networking management method.

The motivation would have been that without modifying the existing Ethernet architecture, the node discovering functionality from Slater provide utility such as “ping” usually implemented in the 3rd layer of the OSI model is made possible in the 2nd layer.

Therefore, it would have been obvious to combine Donzis et al, Au et al and Coughlin et al to obtain the claim 7.

13. Claims 9-13, 15-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slater, U.S. Patent No 6952421 in view of Ahearn et al, U.S. Patent No 5926463.

For Claim 9, Slater teaches that **a method of tracing a data path route from a source node to a destination node through multiple intermediate nodes in a bridged Ethernet system** (see Abstract, Figure 15, Column 5 Line 9-44) **comprising: sending a succession of Ethernet encapsulated route query messages** (see Figure 12-13 e.g. the step of inserting a packet into the payload of another is known as encapsulation) **from the source node** (see Column 15 Line 56-67), **each message containing a media access control (MAC) address of the destination node** (see Column 13 Line 60-64); **receiving, at route trace enabled nodes in the system, the encapsulated route query messages; determining at a control plane of the route trace enabled nodes the port to a next hop node on route to the destination node** (see Column 13 Line 65-67, Column 14 Line 1-2); **returning the MAC address of the current hop node to source node in a response message** (see Column 14 Line 6-16); **repeating the sequence through remaining intermediate bridges until a response message indicating that the destination node has been identified; and tabulating information in the response messages** (see Column 15 Line 56-67). For Claim 13, Slater teaches that **the method, wherein the query message includes address information of the source and destination nodes** (see Column 14 and Line 17-25). For Claim 15, Slater teaches that **the method, wherein the response message includes address information of the source nodes and destination node** (see Column 14 Line 26-35). For Claim 16, Slater teaches that **the method as defined, wherein the step of tabulating information generates a report defining bridges traversed by the Ethernet frame** (see Column 16 Line 40-57).

For Claim 9, Slater does not teach that **determining, at a control plane of the route trace enabled nodes, the MAC address to a next hop node on route to the destination node**. For Claim 10, Slater does not teach that **the method, wherein when the encapsulated route query messages are received at a non-enabled route trace node steps are taken to skip to a route trace enabled bridge**. Claim 11, Slater does not teach that **the method, wherein the service**

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node sends a multi cast message to nodes downstream of the non-enabled node to locate a route trace enable node in the route to the destination node. Claim 12, Slater does not teach that **the method, wherein the encapsulated route query message is sent to the node next to the non-enabled node, which responds to the multi cast message.**

For Claim 9, Ahearn et al teach that **determining, at a control plane of the route trace enabled nodes, the MAC address to a next hop node on route to the destination node** (see Column 14 Line 22-26). For Claim 10, Ahearn et al teach that **the method, wherein when the encapsulated route query messages are received at a non-enabled route trace node steps are taken to skip to a route trace enabled node** (see Column 14 Line 32-37). For Claim 11, Ahearn et al teach that **the method, wherein the service node sends a multi cast message to nodes downstream of the non-enabled bridge to locate a route trace enable bridge in the route to the destination node** (see Column 15 Line 6-11). For Claim 12, Ahearn et al teach that **the method, wherein the encapsulated route query message is sent to the node next to the non-enabled node, which responds to the multi cast message** (see Column 14 Line 32-37 66-67, Column 15 Line 1-8).

Claim 18 is a system claim corresponding to method claim 9, and therefore rejected under the same reason set forth in this paragraph.

Slater and Ahearn et al are analogous art because they are from same field of providing a method to trace a path a packet travels between a pair of transmission nodes in a communication network.

At the time of the invention, it would have been obvious to a person ordinary skill in the art to add a couple of functionalities of Ahearn's method to Slater's method since the two methods, which share the identical concept, serve exactly the same purpose even they are applied under slightly different telecommunication network.

The motivation would have been that since the "traceroute" utility is widely used in networking management at the 3rd layer of the OSI networking model such as IP network, such concept of "traceroute" can be also relied upon without additional modifications to the existing Ethernet

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architecture, which is the dominating 2nd layer technology. Furthermore, by shifting upper layer utility to lower layer ease the processing load of higher layer, which in turn yields the better and more focus performance in the overall communication process.

Therefore, it would have been obvious to combine Slater and Ahearn et al to obtain the claims 9-13, 15-16 and 18.

Allowable Subject Matter

14. Claims 14 and 17 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

For claims 14 and 17, prior art fails to show alone or in combination that the timestamps information of each hop node is included in the query message and the resulting report.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Desineni et al, U.S. Publication No 20030145105, Gvindarajan et al, U.S. Publication No 20020143905, Galand et al, U.S. Publication No 20020024934 and Natarajan et al, U.S. Patent No 6538988 are cited to show other route verification and discovery methods that can also be applied at an Ethernet networking environment.

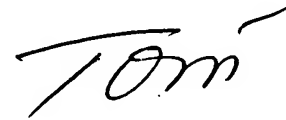
17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wei-po Kao whose telephone number is (571)270-3128. The examiner can normally be reached on Monday through Friday, 8:30AM to 5:00PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dong Ton can be reached on 571-272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W.K.

A handwritten signature in black ink, appearing to read "Tom", with a stylized flourish at the end.

DANG T. TON
SUPERVISORY PATENT EXAMINER